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SHEATHED CAPILLARY INLET FOR REFRIGERATOR

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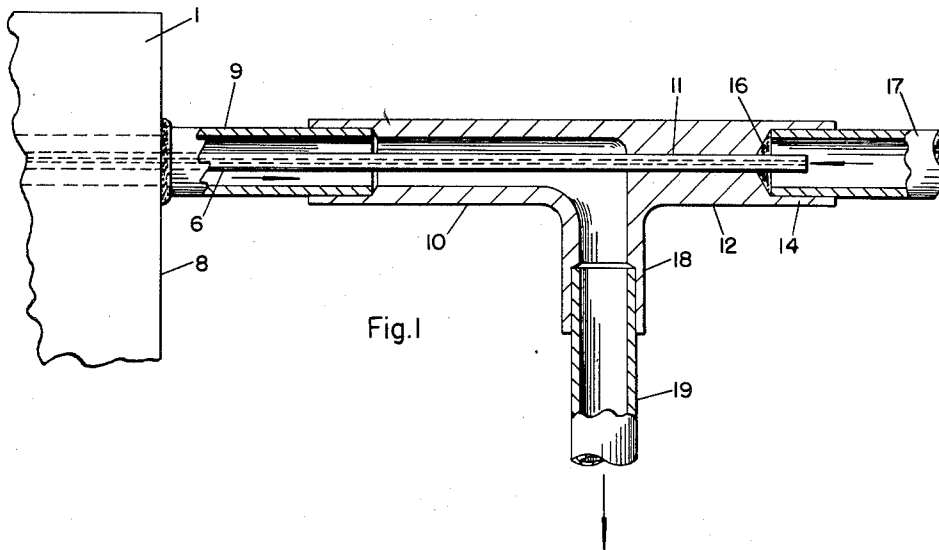


Fig. 1

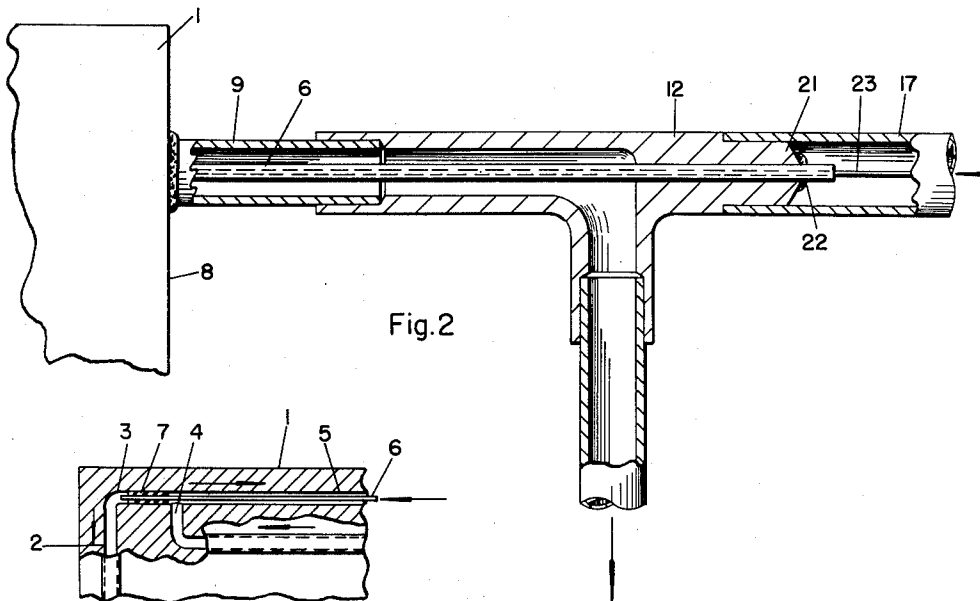


Fig. 2

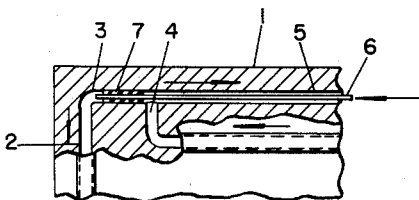


Fig. 3

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## SHEATHED CAPILLARY INLET FOR REFRIGERATOR

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4 Claims. (Cl. 62—127)

The present invention relates to a refrigerator compartment having a capillary tube inlet for refrigerant in heat exchange relation to effluent fluid from the evaporator, and relates in particular to a sheath for protecting the capillary tube.

It is an object of the invention to provide a sheath for a capillary tube on an evaporator which will protect the capillary tube from damage during handling or shipping.

A further object is the provision of an evaporator having a capillary tube extending through the effluent discharge passage of the evaporator with provision of a sheath for the capillary to facilitate making the desired connection to the capillary tube and discharge passage.

The invention will be described in detail in the following specification taken in connection with the accompanying drawing illustrating preferred embodiments by way of example, and wherein:

Figure 1 is a view partly in section showing one embodiment of the invention;

Figure 2 is a similar view of a modification; and

Figure 3 is a view partly in section of a freezing compartment to which the invention is applied.

Referring to the drawing Figure 3, there is shown a freezer compartment 1 of a refrigerator formed from a plate having an evaporator chamber or passageway 2 therein. The passageway 5, formed within the confines of the compartment wall or plate, may be regarded as a part of passageway 2, and connects with passageway 2 by two avenues 3 and 4. A capillary inlet tube 6 is sheathed in the passageway 5 in spaced relation to the wall of the passageway, and packing 7 around an end of the capillary tube, seals off or separates the avenues 3 and 4. The capillary tube supplies refrigerant to the evaporator passageway, so that avenue 3 becomes the inlet evaporator, and effluent gas or liquid from the evaporator passageway 2 exits by avenue 4 and flows through the passageway 5 surrounding the capillary tube and in heat exchange relation thereto. The capillary tube extends beyond the end 8 of the evaporator plate. The packing 7 may be any suitable material resistant to refrigerant, as for example, "neoprene" and may be vulcanized to the capillary tube before insertion into the evaporator, and then the passage 5 may be crimped to form a tight connection with the packing.

At the end 8, a tube or sleeve 9 is welded at one end to the evaporator wall forming a continuation of the passageway 5 for discharge of effluent gas from the freezer compartment, and this tube surrounds and sheathes capillary tube 6. A branched connection in the form of a T member 10 is attached to the other end of tube 9 by a fused joint, as by soldering or welding, and the capillary tube 6 extends axially of tube 9 through a reduced aperture 11 in the branch connection 12 into a socket 14, and the end of the capillary tube terminates within this socket. The capillary tube is sealed to the connection 12 where it passes through aperture 11 by brazing, soldering, or welding metal at 16 around the end in socket 14, and for this purpose the socket may have a depression at its inner end. By having the capillary tube extend beyond the seal 16, the possibility of the capillary tube becoming plugged by flux or solder while making the fusion joint is

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eliminated, and the socket protects the end of the capillary tube from damage. After the capillary tube is sealed in socket 14, a tube 17 may be attached to socket 14 by soldering or welding in known manner, and this tube may lead to the condenser or receiver. The other branch 18 of the T may receive a tube 19 in known manner, connected to the suction end of the compressor.

The capillary tube, being of small size, is fragile, and may be bent in handling during manufacture or shipment of the freezing compartment so as to restrict or plug the capillary opening. However, by providing the more sturdy sheathing tube 9 around the capillary tube, the capillary tube is protected from damage. In order to make the connections to the rest of the refrigerator system it is necessary only to fasten the suction tubing 19 to the end 18 and the supply tube 17 to the socket 14 in the conventional manner, as by soldering. Because the outer end of the capillary tube is within the socket 14 it is effectively protected from damage.

In the modification shown in Figure 2, the end of the branch connection 12 forms a convex cone 21 with the capillary tube 6 projecting therefrom, and the capillary tube is welded around the conical surface as indicated at 22. In this modification the tube 17 is welded to the outside face of the connection 12. It is desirable to plug the passage in the capillary tube by a thin wire 23, to prevent the capillary from being plugged or collapsed in the welding operation, and this wire may be left in place during handling or shipping, but is removed when the tube 17 is connected to the end of branch connection 12.

I claim as my invention:

1. A refrigerator construction comprising: an evaporator plate formed in a refrigerator compartment, said plate having a passageway for refrigerant within the confines of said plate; a short tube permanently connected at one end to said plate by a fused joint, the interior of said tube communicating with said passageway; a T fitting attached at one end by a fused joint to the other end of said tube, and having the opposite end of the T fitting in alignment with said tube; and a capillary tube for supplying refrigerant to said passageway sheathed in a portion of said passageway, the passageway forming a clearance space between the outside wall of said capillary tube and said passageway, and said capillary tube extending from said passageway in said plate axially through said tube, through said fitting, and through said opposite end of the T; the joint of said capillary tube and said opposite end of the T being sealed by a fused joint; said opposite end of the T fitting being adapted for coupling to a tube of larger diameter than the capillary tube for supplying refrigerant to the capillary tube.

2. A refrigerator construction as specified in claim 1 wherein: said opposite end of the T fitting is extended beyond the end of said capillary tube to provide a sheath for the end of the capillary tube.

3. A refrigerator construction as specified in claim 1 wherein: said portion of said passageway sheathing said capillary tube communicates by two avenues with said first mentioned passageway; and having means located between said avenues sealing the space between said capillary tube and sheathing passageway adjacent the interior end of said capillary tube.

4. A refrigerator construction as specified in claim 1 having: a wire removably located in and projecting from the end of the capillary tube that passes through said T.

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